



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,894	09/08/2003	Michael A. Whitt	P-3558-US	1535
49443 7590 10/31/2008 Pearl Cohen Zedek Latzer, LLP 1500 Broadway 12th Floor New York, NY 10036				
			EXAMINER	
			MARVICH, MARIA	
			ART UNIT	PAPER NUMBER
			1633	
			MAIL DATE	DELIVERY MODE
			10/31/2008 PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/656,894

Applicant(s)

WHITT ET AL.

Examiner

MARIA B. MARVICH

Art Unit

1633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/14/08.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 19-28, 30-42, 44-46, 48-60, 62-71, 73, 75-89 and 91-116 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 15, 30, 32, 33, 34, 42, 44, 45, 49, 50, 57-60, 63, 75, 77, 83-85, 89 and 91 is/are rejected.
- 7) ☒ Claim(s) 1-5, 7, 8, 15, 30-34, 36, 37, 42, 44, 75, 77, 79-81, 83-85, 89 and 91 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/15/07 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims **withdrawn** from consideration are 9-14, 19-29, 38-41, 46, 48, 51-56, 64-74, 76, 78, 86-88 and 92-112.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/14/08 has been entered.

The amendment has been sufficient to overcome the objections to the oath, the previous claim rejections as well as the rejections under 35 USC 112, first paragraph.

Claim Objections

Claims 1-8,15,16,30-37,42,44,45,47,49,50,57-60,62,63,75,77,79-85, 89 and 91 are objected to because of the following informalities: Applicants have indicated that Vesicular Stomatitis Virus is abbreviated as VSV, thereafter it is not necessary to repeatedly reference "Vesicular Stomatitis Virus (VSV)" but simply as --VSV-- after the first abbreviation is referenced. This is true of Matrix (M) protein which can be referenced as --M protein--.

When referring to previously recited limitations, it is proper to use the article "the". Use of "a" indicates a new limitation. Furthermore, when using "said", the limitation must be referenced exactly as previously recited. In claim 1, line 7, "a non-cytopathic Vesicular Stomatitis Virus (VSV)" should be amended to --the non-cytopathic VSV--. In claim 1, line 5-6 and claim 31, line 5, the recitation "said M protein deletion or mutation" is improper as the limitation is previously recited as "a deletion or a mutation with a region encoding a Matrix (M) protein". It would be proper to recite --the deletion or the mutation within the M protein--.

Claims 5, 33, 34, 80, 81 recite "said deletion or mutation" which should be amended to recite -- the deletion or the mutation--. Although claim 57 has been amended to delete the article prior to "mutation" such that the recitation in claim 58 is proper, claim 57 is preferable as "a deletion or a mutation" followed by the reference to "the deletion or the mutation". The recitation in

Claim 7 recites that the VSV "further comprising an insertion of a heterologous nucleic acid encoding a polypeptide". However, it is the nucleic acid that actually comprises the heterologous nucleic acid. It would be more accurate to recite --wherein the nucleic acid further comprises a heterologous nucleic acid encoding a polypeptide--. This amendment would be proper for claim 15, 49, 84 and 891. In fact, the recitations in claim 36 and 42 of "an insertion" of a nucleic acid sequence does not require the word "insertion" as it is a product that does not comprise an insertion. Rather, it would be proper to recite, --further comprising a (heterologous) nucleic acid sequence encoding"

In claim 77 and 82 "encoding for" is grammatically improper and should be simply -- encoding--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 45, 49, 50, 57-60 and 63 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation that “a “genome consists of a deletion within a region encoding amino acid residues 440-449, or 449-462 of the membrane-proximal ectodomain” has been added to claim. It appears as if applicants intend to recite a VSV genome comprising a modification wherein the deletion is selected from a deletion of residues 440-449 or a deletion of 449-462. However, this recitation quite literally means that the VSV genome is a deletion of residues 440-449, or 449-462 of the membrane-proximal ectodomain as the term “consists of” is a closed term. The limitation as recited is impermissible NEW MATTER.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-5, 15, 30, 32, 33, 34, 42 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Ye et al (J virol, 1994, Vol 68(11), pages 7386-7396; see entire document). **This is a new rejection.**

Ye et al teach recombinant VSV particles comprising a deletion with the M protein wherein the resulting particle is non-cytopathic (see e.g. figure 1 and page 7390, col 2, ¶ 2). Ye et al found that the entire M protein is required for the cytopathic effect and deleted M proteins lead. The nucleic acid is full length and hence comprises the G-stem sequences

Claims 75, 77, 83-85, 89 and 91 are rejected under 35 U.S.C. 102(e) as being anticipated by Bell et al (2004/0170607; see entire documents). **Although it was stated in the advisory action mailed 1/2/08 and 7/2/08 that the amendment would have overcome the rejection under 35 USC 102, it was upon further consideration discovered that the amendment did not overcome claims 75, 77, 83-85, 89 and 91. Hence the rejections stand as regards these claims.**

Bell et al teach recombinant Rhabdovirus that are mutants of VSV with deletions in the region within the membrane proximal ectodomain that corresponds to 440-449 of the instant specification, as recited in claims 75, 77, 90 and 91. The Rhabdovirus comprises mutations in the N-terminal portion of the M protein in addition to modifications within the G protein. The G protein is modified (see e.g. ¶ 112) such that the RV expresses for example therapeutic proteins (see e.g. ¶ 113-114) or to encode antireceptors (see e.g. ¶ 112) as recited in claims 84, 85 and 89.

The coding sequences is inherently under control of a regulatory element as recited in claim 83. The Rhabdovirus are vectors designed to act as gene delivery vectors and to deliver antigens as recited in claim 91 for delivery to cells (see e.g. ¶ 112).

Claims 75, 77, 83-85, 89 and 91 are rejected under 35 U.S.C. 102(b) as being anticipated by Conzelmann (US 6,033,886; see entire document). **Although it was state din the advisory action mailed 1/2/08 and 7/2/08 that the amendment would have overcome the rejection under 35 USC 102, it was upon further consideration discovered that the amendment did not overcome claims 75, 77, 83-85, 89 and 91. Hence the rejections stand as regards these claims.**

Conzelmann teaches a recombinant non-cytopathic Rhabdovirus such as VSV (see e.g. col 5, line 39 and col 3-4 bridging ¶) comprising a genome comprising a mutation in the sequence encoding a G protein (G-) (see e.g. col 6, line 29-30) as recited in claim 75 and 90. In the G- Rhabdovirus, the mutation/ deletion in the G sequence can be the entire sequence and as such encompass a deletion in the 440-449 region (see e.g. col 6, line 36) as recited in claim 77. The Rhabdovirus inherently comprises a regulatory region for expression of its proteins as recited in claim 60 and 83. The virus comprises heterologous nucleic acids encoding sequences that can be considered therapeutic in that they are used to generate therapies against virulent viruses (see e.g. col 3, line 30-33) as recited in claims 84 and 85 and are additionally inherently associated with regulatory elements for their expression as recited in claim 83. The heterologous nucleic acids can be epitopes, which often function as anti-receptors as recited in claim 89. Vectors encoding the genomes are taught in col 11, line 10-12 as recited in claim 91.

Response to Argument

Applicants' arguments filed 12/13/07 have been fully considered but they are not persuasive for the following reasons. Applicants argue that the specification is directed to specific mutations in the membrane-proximal ectodomain of the G stem polypeptide which spans amino acids 421-462 of the G protein which emphasizes the importance of the region between 440 and 449. Applicants argue that neither Bell et al nor Conzelmann teach or provide the importance of this region. However, the claims are drawn to any mutation or deletion in the polynucleotide encoding the membrane-proximal ectoderm of the Glycoprotein and hence encompass those mutants that do not have the same function as disclosed in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7, 8, 15, 30-34, 36, 37, 42, 44, 75, 77, 79-81, 83-85, 89 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al (J virol, 1994, Vol 68(11), pages 7386-7396; see entire document) further in view of Bell et al (2004/0170607; see entire documents) or Conzelmann (US 6,033,886; see entire document). **This is a new rejection.**

Applicants claim a recombinant non-cytopathic VSV and nucleic acids encoding wherein the nucleic acid comprises a deletion or a mutation with the M and/or G protein. The M mutation results in a particle that is non-cytopathic

The teachings of Bell et al and Conzelmann et al and Ye et al are described above and are applied as before. It is noted that the mutations of Ye et al are not taught in combination with the mutations of Bell et al or Conzelmann et al. . However, in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007), the Supreme Court particularly emphasized "the need for caution in granting a patent based on a combination of elements found in the prior art," (Id. At 1395) and discussed circumstances in which a patent might be determined to be obvious. Importantly, the Supreme Court reaffirmed principles based on it precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." In the instant case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Bell et al or Conzelmann et al with those of Ye et al because both inventions are directed at generation of recombinant VSV particles comprising mutations within the Matrix and/or G proteins. To combine the teachings would have used methodologies available in the art that had been determined to successfully generate VSV particles. Based upon the teachings of the cited references, the high skill of one of ordinary skill in the art, and absent evidence to the contrary, there would have been a reasonable expectation of success to result in the claimed invention.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101, which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 45, 47, 49, 75, 77, 83, 84, 89 and 91 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/327,673.

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claims because the examined claim is either anticipated by, or would have been obvious over, the reference claims. Although the conflicting claims are not identical, they are not patentably distinct from each other because the cited claims of the instant invention are

generic to all that is recited in claims 1-20 of copending Application No. 10/327,673. That is, the cited claims of copending Application No. 10/327,673 anticipate and fall entirely within the scope of the rejected claims of the instant application. Specifically, copending Application No. 10/327,673 claims a recombinant Rhabdovirus comprising a deletion of N-terminal sequences of a VSV G peptide sequence and DNA sequences encoding the Rhabdovirus.

Additionally, if a patent resulting from the instant claims was issued and transferred to an assignee different from the assignee holding the copending Application No. 10/327,673, then two different assignees would hold a patent to the claimed invention of copending Application No. 10/327,673, and thus improperly there would be possible harassment by multiple assignees.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Argument

It is acknowledged that applicants' will address the provisional obviousness double patenting rejections upon indication of allowable subject matter. However, until the recited claims are patented or a terminal disclaimer is filed, the claims remain rejected.

As well, applicants' arguments filed 3/15/07 but are not persuasive as both claims include claims drawn to G proteins with deletions that are generic and not limited to specifically either the membrane proximal ectodomain or deletion of the entire N-terminus. Thus the instant claims by reciting a Rhabdovirus comprising a mutation in a G protein are generic to all that is recited in application 10/327673. However, as the claims are drawn to any mutation in the membrane

proximal ectodomain of the G protein even those mutants that do not have the intended function anticipate the instant claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA B. MARVICH whose telephone number is (571)272-0774. The examiner can normally be reached on M-F (7:00-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach, PhD can be reached on (571)-272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maria B Marvich, PhD
Primary Examiner
Art Unit 1633

/Maria B Marvich, PhD/
Primary Examiner, Art Unit 1633